

Claim Amendments

Claim 1 (currently amended) A method of treating coal combustion flue gas containing mercury, comprising:
injecting a member selected from the group consisting of one
~~of~~ molecular halogen and a thermolabile molecular halogen precursor into said flue gas, ~~wherein said flue gas has a~~
~~temperature in excess of 100 °C,~~ to effect oxidation of elemental mercury to a mercuric halide and providing ~~one of~~
~~a liquid and~~ alkaline solid particles in said flue gas ahead of a particulate collection device, wherein said flue gas has a temperature in excess of 100 °C, in order to adsorb at least a portion of said mercuric halide.

Claim 2 (original) The method as claimed in claim 1, wherein said molecular halogen and/or thermolabile molecular halogen precursor contains one of chlorine, bromine and iodine.

Claim 3 (original) The method as claimed in claim 2, wherein said thermolabile molecular halogen precursor contains a hypohalite.

Claim 4 (original) The method as claimed in claim 3, wherein said hypohalite is a hypochlorite.

Claim 5 (original) The method as claimed in claim 4, wherein said hypochlorite is calcium hypochlorite.

Claim 6 (original) The method as claimed in claim 5, wherein the calcium hypochlorite is in aqueous solution.

Claim 7 (original) The method as claimed in claim 6, wherein calcium chloride is a component of the calcium hypochlorite containing solution.

Claim 8 (original) A method as claimed in claim 1, wherein the alkaline solid particles are alkaline coal fly ash particles.

Claim 9 (original) A method as claimed in claim 8, wherein the coal fly ash particles are those derived from combustion of subbituminous or lignite coal.

Claim 10 (original) A method as claimed in claim 1, wherein the alkaline solid particles are those derived from the fusion of coal ash with alkali and an alkali flux.

Claim 11 (original) A method as claimed in claim 1, wherein the alkaline solid particles are those derived from the decomposition of a thermolabile halogen precursor.

Claim 12 (original) A method as claimed in claim 1, wherein the alkaline solid particles are those derived from flue gas desulphurization solids.

Claim 13 (currently amended) The method as claimed in claim 1, wherein said particulate matter collection device is an electrostatic precipitator ~~the resulting treated flue gas containing alkaline solid particles is passed through an electrostatic precipitator.~~

Claim 14 (currently amended) The method as claimed in claim 1, wherein said particulate matter collection device is a baghouse ~~the resulting treated flue gas containing alkaline solid particles is passed through a baghouse.~~

Claim 15 (currently amended) The method as claimed in claim 1, wherein said particulate matter collection device is a fabric filter ~~the resulting treated flue gas containing alkaline solid particles is passed through a fabric filter.~~

Claim 16 (previously amended) The method as claimed in claim 1, wherein the resulting treated flue gas having had particulate matter removed is passed through a flue gas desulphurization system (FGD) containing a liquid.

Claim 17 (original) The method as claimed in claim 11, wherein the alkaline particles contain lime.

Claim 18 (previously amended) The method as claimed in claim 1, wherein the mercuric halide containing alkaline solid particles are suitable for use in cementitious products.

Claim 19 (new) A method of treating coal combustion flue gas containing mercury, comprising: injecting a member selected from the group consisting of molecular halogen and a thermolabile molecular halogen precursor into said flue gas to effect oxidation of elemental mercury to a mercuric halide and providing alkaline solid particles in said flue gas ahead of a particulate collection device, wherein said flue gas has a temperature in excess of 127 °C, in order to adsorb at least a portion of said mercuric halide.